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Successfully eEnabled SME's – What Have They Got in Common?

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Abstract

This paper investigates factors that contribute to the successful use of e-commerce by SMEs. Three main sets of factors are investigated – organizational characteristics, management issues and implementation issues. The research investigates these factors within successful e-commerce organizations - all of the 25 companies used in this research have been recognized publicly as successful implementers of e-commerce. The method of research used was in-depth personal interviews using a semi-structured questionnaire. The research reveals that the organizational factors that contribute to success include previous organizational IT expertise, previous experience with logistics and the suitability of the product for sale on the web. The management factors that have a positive influence on success include the existence of a champion, having an e-commerce strategy, and integrating the web presence into the existing business. The implementation issues

that contribute to success include planning the web presence, usability of the web site, the existence of security features on the web site, outsourcing elements of the e-commerce project and marketing the web site.

1. Introduction

While there has been significant research on supporting EC, existing empirical research focusing on success factors of Web sites is mainly anecdotal and exploratory in nature (Liu and Arnett, 2000). Thus, while there should be a considerable number and variety of factors associated with Web sites success, little knowledge exists about the combination of these factors (Liu and Arnett, 2000). Therefore the primary motive for this research is to provide an empirical analysis of successful Irish SMEs engaging in E-commerce and to find out the most successful combination of factors, which attribute to success on the Web.

The focus of this research is on small and medium sized (SMEs) private companies operating in Ireland. An SME is defined in this research in accordance with the EU definition as firms with less than 250 fulltime employees. The growth of SMEs plays a significant role in the economic vitality of a nation (Haynes et al, 1998). The SME sector is vital to the economic success of the Irish nation, given the contribution of small business to economic growth and job creation. Businesses with fewer than 50 employees account for 98% of the country's businesses and more than 90% of Irish businesses employ fewer than 10 people. Today's small businesses face an increasingly unstable marketplace rife with change. Perhaps no single aspect of these changes has reverberated as clearly as the growth of the Internet. This growth raises issues which concern not only how the Internet is currently being used, but also which areas of Internet use may offer additional resources for SMEs (Guthrie and Austin, 1996).

2. Research Model

The primary objective of this research is to determine what are the factors, which contribute to a successful e-commerce project within an SME. The research model is presented in Figure 1. Certain organisational characteristics have been identified as contributing to the success of an e-commerce project as identified in Figure 1. The existence of IT Expertise has a positive impact on the success of a project (Hamill and Gregory, 1997) and is something that is often deficient in SME's (Pollard and Hayne, 1998). The second organisational trait - previous experience with logistics - is important as logistics is often the difference between e-commerce success and failure (Wilson, 1999). The Internet and the World Wide Web will

change distribution like no other environmental force since the industrial revolution (Pitt, 1999). The third organisational factor – the traits of a product –arises due to the fact that the Internet is effective for the distribution of symbolic, informational or knowledge services, but it is extremely ineffective for the distribution of matter dependent on physical embodied services (Berthon et al., 1999). In addition, the Internet can realistically reproduce only two of our five senses, namely, sight and sound this limitation restricts the kind of products that are saleable on the Internet (Kiang et al., 2000).

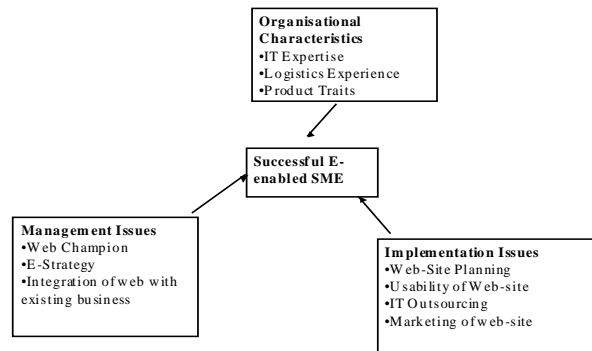


Figure 1: Research Model

The successful completion of an e-commerce project requires management input. The first management issue is the need for a champion. Poon and Swatman (1997) found in their research that management enthusiasm for Internet adoption was common among SMEs. They found that often the director or a senior partner could see the potential the Internet offers to his/her business and plays an active role in adopting the technology. Such managers play a similar role to that of product champion illustrated by Runge and Earl (1988). The second management issue is the need for a formal e-commerce strategy. DeCovny, (1998); Teubner and Klein (1998) and Williams (1999) have all commented that many companies have failed to succeed on the Internet due to the lack of a thought through e-commerce strategy. They may be aware of the importance of IT, but are not fully realising the full range of benefits that Internet strategies can provide (Dandridge and Levenburg, 2000). They do not foresee the effort that goes into maintaining a Web site, the increased competition from exposure to a 'global market' and the impact a Web site will have on the existing business (Loebbecke et al, 1999). The third management issue is the need to integrate the business and web based activities. IS and business integration is seen as a critical success factor in ensuring the potential of IT is delivered to an organisation (Earl, 1989; Ward and Griffiths, 1996). This integration enables IS to

support business strategies more effectively (Teo and King, 1997). The necessity for integration of IS systems and their alignment with corporate strategies has been acknowledged as applicable to Internet activities (Elliot, 2000).

The third sets of factors identified in the research model are implementation issues. The first of these is the need to plan the web site. Competitors who spend the time and effort designing well thought out Web sites will most likely gain from the mistakes made by business that proceed without planning (Van Doren et al., 2000). Indeed, the difference between Web success and Web failure often hinges on how carefully people sift through details and fine-tune trivial plans (Brown et al, 1999).

The second implementation issue is web site usability. Usability consists of the issues of whether Web pages are easy to read, easy to browse and subjectively pleasing (Nielsen, 1995, 2000). The promise of electronic commerce and online shopping depends to a great extent on user interfaces and how people interact with computers (Hoque and Lohse, 1999). Increasing customer demands, intensive competition, the speed at which Web technology is occurring and the rapid increase in the numbers of users, are all augmenting the challenges for designing useable and useful commercial Web sites (Vassilopoulou et al, 2000). As well as usability the web site needs to demonstrate to users that it is secure. The lack of such site security features prevents the conducting of commerce on-line (Hoffman et al., 1999).

SMEs usually do not have the capacity to develop and manage their own system and must rely heavily on outsourcing (Ballintine et al., 1998; Blili and Raymond, 1993). This lack of control over their informational resources increases the level of risk, especially where these resources are used for both operational and strategic purposes (Blili and Raymond, 1993) as they are in e-commerce based systems.

A clear promotional strategy is critical in justifying a Web site (Van Doren et al., 2000). A site needs to be marketed properly in order to ensue high access. This can be done in various ways including registering the site with all of the on-line search engines, establishing reciprocal cross-linkages to other sites; and ensuring the URL address is used in all company correspondence (Hamill and Gregory, 1997; Zarowin, 2000; Thelwell, 2000).

3 Research Methodology

The objective of the research is to investigate the factors that influence the degree of success of an e-commerce project. A purposive or judgemental sampling technique was used in which examples of best practice projects were sought. In order to be eligible for inclusion in this study the company had to be accredited for their use of the Internet in their businesses. Such accreditation was deemed to have been given if the company was nominated for an award for excellence in Web design or e-commerce implementation. In Ireland a number of sources provide such

awards - the government enterprise development agency, an Internet directory company and the business and technical press. In addition, most of these awards have a specific category for SME. From these lists an initial prospective sample of 55 companies was compiled.

These 55 companies represented the initial sampling frame for this research. However, given that the purpose of the research was to investigate the implementation success factors for best practice companies, further refinement of the sampling frame was carried out. This refinement involved reviewing and assessing the web presence of each of the 55 companies on the basis of predefined criteria set down in a structured evaluation form. The purpose of this appraisal was to investigate and rank the extent, scope and comprehensiveness of the on-line offering of each company. The main criteria used in the assessment were usability and design, the extent of the content provided and the degree of interactivity and personalisation on the web site. The total aggregate score for each of the individual web site was then used to rank the companies and to guide the selection of companies for the research.

In-depth interviews were conducted with the person deemed to be most knowledgeable on the e-commerce developments within the 25 selected companies. On average, the interviews lasted 1 hour, and were recorded using a Dictaphone. These interviews were conducted using a semi-structured questionnaire. Two of the questions obtained data on the average number of site visits per week and the average turnover generated from the web site. These two measures were then used as success measures to allow comparisons between the 25 companies interviewed.

4. Profile of Companies

The companies operate in a variety of different sectors 8 computer-related services/software development, 8 professional services and consulting, 7 retail, 2 distribution/wholesaler. All were SMEs, with the average number of employees being 18. 64% were traditional companies who had established a Web presence, the remainder were start-ups that have come into existence due to the opportunities presented by the Internet. 60% are business to consumer and the remainder are business to business.

None of the companies have less than 500 visits to their web pages per week, 28% had between 501 and 2000 and the remaining 72% had greater than 5000. 76% have an average monthly turnover - directly related to the web site- of in excess of €6,350 (IR£5,000), 8% have between €1,271-€6,349 and 16% have between €0-€1,270. The main strategic thrust of the web presence of the companies, as categorised by Timmers (1998) is presented in Figure 2.

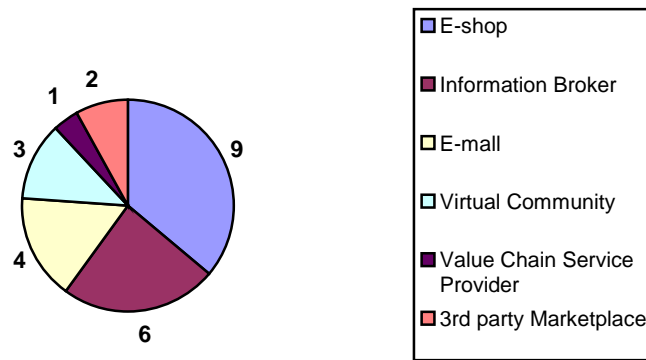


Figure 2: E-commerce Strategies of Companies

5. Organisational Characteristics

The research found that organisational characteristics, as identified in Table 1, have a positive impact on the success of the e-commerce project. The table presents the mean and standard deviation for the number (n) of companies who answered each particular question. Some of the 25 companies interviewed did not answer specific questions, because the particular characteristic or issue was not applicable to them.

Organisational Characteristics	Mean*	S.D.	n
Suitability of product for sale on the WWW	1.12	.33	25
Previous IT Experience	1.43	.65	14
Previous experience with Logistics	1.33	.71	9

*Had a positive impact on your firms success on the Web 1=Strongly Agree, 2=Agree, 3=Neutral, 4= Disagree, 5=Strongly Disagree

Table 1: Organisational Characteristics

All of the companies believe that their product offerings have a positive impact on the success of their e-business. The traits of such products as identified by the companies, are that they are information rich (56%), customisable (32%), tangible (28%), unique (24%), web-based (20%), and digitally based products (20%). Companies with information rich products are using the web to make searching for their products on-line easier. Customisable products and tangible products do extremely well as the web provides a global market for these products which prior to this was prohibitively expensive to market to. Web-based and digitally based

products capitalise on the new medium of the web. These products can be updated quickly, delivered and paid for instantly.

Previous exposure to technology was only applicable to 16 companies – as the other 9 had come into existence as a result of the opportunities presented by the Internet. Of these 16, 14 described themselves as technologically competent. The positive benefits of this competency included the ability to introduce e-commerce more easily into the business and the ability to utilise the Web to a greater capacity.

Only 9 companies had a remote order and delivery service prior to their Web presence. Previous experience with logistics was deemed to have a positive effect on the success of the Web site. In particular such prior experience enables companies to be more efficient in their delivery mechanisms – as they had learnt from their past experience that the customer wanted an efficient service with speedy delivery, the next day if possible. As these companies moved onto the web they sought to convert their existing delivery mechanisms to be web-enabled. In so doing they made these systems more efficient by reducing labour costs and also reducing the amount of time to fulfil customer orders. This is achieved by using on-line order forms – which means that in effect the customer does the data entry. For existing retail outlets that already exported globally through mail order their web presence made them more efficient by replacing communication mechanisms like telephone, fax and snail mail.

6. Management Issues

The importance of management in a successful e-business was reiterated in this research. The management issues identified in Table 2 were all found to have a positive impact on the success of the e-commerce project.

Management Issues	Mean*	S.D.	n
Presence of a Web champion	1.22	.33	23
Existence of an E-business strategy	1.39	.98	18
Integration of business and web activities	1.14	.36	21

*Had a positive impact on your firms success on the Web 1=Strongly Agree, 2=Agree, 3=Neutral, 4= Disagree, 5=Strongly Disagree

Table 2: Management Issues

92% had a designated person in charge of the development of the web site, with the other 8% preferring a team based approach. The most important trait of the web champion as identified by 76% of companies was that he/she bore and drove the idea for the site. The rationale for this is typified by one manager - "Having somebody in charge of the site made a big difference in terms of our commercial

success as he was driving the site and looking at it as a business in itself.” As well as driving the project, the web champions were seen to be working hard to bring the project to fruition and this had a positive impact on the perceived importance of the project. In addition to being the torchbearer for the site the web champions performed other tasks that were deemed to be important contributions to the success of the site. At a project management level they set deadlines and targets and created the specification for the project if it was going to be outsourced. In addition, 16% of companies identified the importance of the role of the web champion in promoting the web site internally. While this only represents 4 companies it is still worthy of note given that the average size of the companies was 18 employees. Thus, even within small companies where communication is normally more fluid the need to communicate new projects remains important.

76% of the companies had a formal e-commerce strategy and believe that the presence of such a strategy has a positive impact on the success of their web presence. The remainder had no formal e-commerce strategy in place, and thus were not asked to rate its impact on the success of their web site. A formal strategy was more common among pure-play Internet companies. As such the formal e-commerce plan, was also the business plan. Within these plans specific strategic objectives were outlined. One example of this, identified by 24% of the companies, was the desire to become the number one site for a certain market segment.

The common view of those companies who did not have a formal e-commerce strategy was that such a prescribed strategy is not worth documenting due to the fluid nature of the environment. However, these companies have an e-commerce strategy that is emergent and responsive to the successes and problems encountered. The initial objective for the majority was to establish a brochure-ware site through which it was possible to provide low cost and speedy communication with customers and to gain access to an increased number of customers. Having “tested the waters of e-commerce” and being successful, most have evolved their sites to include more interactive elements, and as a result of this evolved into on-line sales. This evolutionary strategic process is on going, according to one manager - “we are constantly changing what our objectives are. The Web is moving so fast, customers dictate what you do going forward, so its really just dictated by what they want.”

The majority agreed that the integration of their business and Web activities contributed to their success. 76% were thoroughly integrated while 8% were somewhat integrated. For the remaining 16% the concept of integration did not apply as they were totally on-line businesses. The importance of integration is summed up by the manager of a 3rd party marketplace who felt that it was “Essential, couldn't under emphasise that. The Web is only as strong as the back up you have behind it.”

The benefits that such integration brings include increased efficiency (40%), better use of customer information (20%) and ability to better exploit the potential of e-commerce (20%). Efficiency manifested itself in the ability to run the business more cost effectively due to the seamless transfer of data through all functions of

the organization. Better use of customer information included analysing such information as site statistics, e-mail and customer feedback forms.

7. Implementation Issues

Attention to detail in the planning, design and on-going maintenance of the e-business project is an important characteristic of best practice. The implementation issues identified in Table 3, were identified by companies as contributing positively to the success of their e-commerce project.

Implementation Issues	Mean*	S.D.	n
Web site planning	1.13	.34	24
Ease of use of the web site	1.00	.00	25
Security on the web site	1.78	.85	23
Outsourcing of tasks specific to the Web site	1.96	1.16	24
Marketing of the web site			
Registration with search engines	1.72	1.06	25
Linking with other sites	1.60	.94	20
Publication of URL on promotional material	1.20	.50	25

*Had a positive impact on your firms success on the Web 1=Strongly Agree, 2=Agree, 3=Neutral, 4= Disagree, 5=Strongly Disagree

Table 3: Implementation Issues

92% believe that planning the web site had a positive impact on success. The key benefits that such planning brought about were the ability to better serve the intended web site audience – the customer and a more focused approach. In terms of meeting the needs of the intended audience companies felt that planning had meant they had a site that had a purpose to it, and was not just keeping up with the times. Planning resulted in a more focused approach being adopted in a number of areas; firstly companies gained competitive intelligence and ideas by investigating other companies web sites, secondly the planning process provided a roadmap to proceed and thirdly it enabled them to better exploit e-commerce. An example of gaining competitive intelligence was given by a travel company who found out as a result of their research that 80% of tourists came from 4-5 different markets. As a result of this the company set up individual sites for these markets and thus opened up new markets and increased their market share. The planning process provided a roadmap in the sense that companies felt that after the planning process they knew what to do and had learnt from the experience of planning.

All the interviewees strongly agreed that the ease of use of the site positively impacted on their success on the Web. Usability is perceived among them as more important than the actual presentation of the site. The key components of good site-design include ease of use, speed of access, information content and site interactivity.

Ease of use was created and measured in different ways - adhering to the 3-click-rule, using customer feedback to solicit improvements to the site, formal usability techniques and informal usability tests amongst employees. Companies improved speed of access by avoiding the using of flash techniques and heavy graphics. Information content was a critical component in the implementation of site design. The commercial director of one company went so far to say "The information itself is more important than the design of the site." 40% of companies indicated that they wanted the site to project a certain image of the company and in particular 12% wanted the site to emphasise that there was real business behind the site, with real people involved in order to project a favourable image. As the owner-manager of e-mall said "When people log onto your site, people identify your company with the Web page, it's a portrayal of your company, so it's extremely important obviously to have it looking brilliant." Information content was also dependent on the type of business. For sites that have a large level of content like e-malls and information brokers, searchable features such as key words were important. Meanwhile sites that ask customers for personal information identified trustworthiness as an important feature of site design. 12% of companies sought to create a particular image for the site that was in keeping with the niche target market they were serving – for example invoking an "Irish theme" to their site, by the use of green and white.

All of the sites provided security features. 68% believe that site security positively impacts on their success, 32% felt it made no difference to their success. A number of the companies (40%) felt that security was a prerequisite, in that customers expected it to be there. The companies in this research felt that this requirement was even more pronounced for them as they have been cited as e-commerce success stories. 24% of the companies said that security was crucial. These were companies that carried out transactions on their site or else had to ask visitors to divulge a lot of personal details. For them, it was imperative to have secure features shown on their site, so people would conduct business with them. As the owner-manager of an e-shop said "People will not give their credit card details unless they see the padlock at end of the page." Another reason why security is crucial is to minimise the risk of losing a customer. The manager of a 3rd party marketplace pointed out "If there is a security breach, you will never get your customer back."

68% of the companies thought that outsourcing had a positive impact in their success, 12% felt it made no impact and 6% didn't think it had a positive impact. The extent of outsourcing varied depending on the task - 88% outsourced hosting, 48% outsourced design, 36% outsourced maintenance. There is a trend to take some aspects back in-house as the web site matures, with 16% of companies electing to take back design and 12% electing to take back maintenance. This was not because

they had experienced any problems with outsourcing, but rather their Web site became such an integral part of their business, that they had to take on someone full time or train an employee in house to manage it.

Companies chose to outsource hosting because it provided access to expertise, was more cost effective, and to benefit from the support and reliability of the outsourcing company. The decision to outsource design and maintenance was taken by 28% of companies simply because they had no in-house expertise in the area. This however, was not seen as a problem for companies, rather they used the requirement to acquire expert advice. The owner of a software company said, "When you are aiming to be the best in the world you got to have that brainpower and that expertise. We decided to go to world class designers who had extensive Web experience and use those to put an international level of design on the site and that strategy has proven to be effective." For 12%, speed to market was their main reason for outsourcing.

All of the companies have a good working relationship with their outsourcing partner. For some this has been achieved by changing the outsourcing partner as they were not happy with the sites they were producing. Although, outsourcing may have been expensive, these companies felt it was cheaper in the long run, because it was less expensive in comparison with the cost of training someone in-house or ending up making costly mistakes by trying to build the site in-house initially.

An important part of any web implementation is the marketing of the web site once it is established. This research investigates the impact of three promotion techniques - registration with search engines linking with other web sites, and publication of the site's URL. 72% believe that registration with search engines enhanced their success, 20% felt it made no impact, and 8% disagreed. The key reason for being listed on the search engines is visibility. The owner of one e-shop remarked, "You have to be on that list, if you are not on that list, somebody else will be there." The perceived importance of listings on search engines was more pronounced in total e-commerce businesses as against clicks-and-bricks businesses. Those who believe that search engine listings do not positively influence success were predominantly clicks-and-bricks businesses who used alternative means such as trade shows or advertisements in industry magazines to promote their URL.

80% used external links, while 20% do not. Of the companies who agreed that linking had a positive impact on their success, 36% felt they had benefited because linking gave them greater access to their target audience. This was because they felt they were benefiting from having additional entrances to their site. 32% thought that the links gave them greater credibility, for example in linking them to high profile sites. The third benefit of external links was by providing relevant content for customers. The companies that were more inclined to link include virtual communities, information brokers, e-malls and 3rd party marketplaces. In contrast, there are those who make a conscious effort not to link to other sites. This was prominent among the e-shops, who didn't want their customers going into another site where they might be likely to purchase something. They were also the sites that

mentioned “trustworthiness” an in important feature of site design. They believed that the absence of external links kept their site more authentic and trustworthy.

96% of the interviewees agreed that publicising their URL contributed to their success. Companies use a variety of promotional techniques to publicise their URL - press releases, company stationery, trade shows and radio/TV advertising. In fact 20% believe that traditional media is better than on-line promotional means.

8. Conclusion

This research had as it sampling frame companies who have created successful web sites. These firms investigated included both existing companies and newly formed Internet companies. Regardless of whether these companies existed, or were newly formed the key factor that permeates all of them is that these successfully e-enabled SME's were customer focused. They use the web as a means of delivering their product or service more efficiently and more effectively. All made extensive use of planning at both the strategic and implementation levels to ensure the success of their project. At a strategic level there was a clear emphasis on integrating the web activities into the main business activities. This either took the form of a formalised e-commerce strategy, or else a more emergent and fluid type strategy. In planning their project all had created a responsible entity – either a single person or a team of people who had responsibility for the project.

For existing companies previous IT expertise and knowledge of logistics provided help in ensuring success. The previous IT expertise provided knowledge that was used in formulating and developing the proposed e-business project, but not necessarily in developing the system in-house. In common with other studies on SME's a deficiency in IT expertise was found and this prevented the companies implementing an e-commerce solution on their own. This shortfall however was not seen as a negative, rather it provided the possibility for these companies to strategically outsource components of their web site design and development. Having the right product – one that suited the Internet - was critical to doing well. All devoted considerable time, energy and commitment to create and implement a web site they believed would meet the objectives they set for it. Achieving this involved careful planning of the web site, ensuring the web site was easy to use, providing security features and promoting the web site via electronic and traditional means.

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